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ABSTRACT

The extension of the instructional programming process, as outlined by Markle and Tiemann (1967), to the treatment of psychiatric in-patients is described. Three case studies are presented as examples of the application of the programming procedures as derived from the Constructional Model of Dr. Israel Goldiamond. The emphasis throughout all three cases is on self control and the extablishment of analytic repertoires by the patient/client. A short discussion emphasizes that no aversive, deprivation, or eliminatative procedures are used nor are extraneous or "artificial" consequences employed to maintain behavior. As a result of the explicitness and emphasis on self-control, the procedures outlined increase the possibilities of behavioral interventions being applied where other models are predominate. (Author)

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# PROGRAMMED INSTRUCTION, SELF-CONTROL, AND IN-PATIENT PSYCHIATRY

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**Chicago, Illinois**

A brief paper presented at the Second Annual Convention of the Midwest Association of Behavior Analysis, Blackstone Hotel, Chicago, Illinois May 4, 1976.

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## PREFATORY REMARKS

The text below is a script used for an oral presentation to M.A.B.A. in Spring, 1976. As such, it was written in a colloquial tone without extensive literature citations or other technical annotation - we took this course of action out of economic consideration of the half-hour allotted time for our presentation; furthermore, much of our target audience consisted of people who were involved in applied work in the field and to whom explicit experimental data would likely have seemed merely pedantic. Our case presentations, therefore, were abridged to describe only the more salient features of the treatment program, but include the critical procedures and outcomes. The authors invite now, as we did at our original presentation, any questions pertaining to the explicit experimental evidence for or ethical considerations upon our procedures. We feel the procedures themselves emerge as direct syntheses of the experimental operant literature; thus, our narrative is directed primarily toward an approach to clinical psychiatric work in terms of constructive rather than eliminative procedures, using a combination of instructional programming methods and Goldiamond's Constructional Model.

We would also like to note that, while the authors were employed as in-patient mental health workers at Northwestern Memorial Hospital Institute of Psychiatry at the time these cases were carried, the Institute is in no way to be considered a behavioral facility. Indeed, the prevailing philosophy for this institution is decidedly anti-behaviorist and quite pro-psychoanalytic and psychodynamic. The authors claim sole responsibility for use of the procedures described below; the Institute and its attending staff simply tolerated our intrusion and monitored our activities with patients, holding us strictly accountable to on-unit as well as administrative supervisors. It may be noted, therefore, that our procedures, which are strictly behavioral, were easily incorporated into the patients on-unit milieu, were explicit and thus accessible to audit, and were constructed by the patients working with staff to ensure the patients' rights would be safeguarded. While successful outcomes of these procedures may be measured in the performance of the patients, we feel the not-so-hidden institutional requirements met by the described model make it all the more attractive for application by those who are attempting to use behavioral procedures under the auspices of inhospitable agencies.

With these considerations explicitly stated from the outset, both a disclaimer for the Institute of Psychiatry and an explanation for our brevity in presentation, we begin.

Where do I want to go? How can I tell when I get there? Where am I now? What can I do to get there? How will I follow my progress?

These questions are basic for anyone attempting to go somewhere, get something done, or, in general, attempting to solve a problem. Educational technologists have long known that in order to teach someone a new set of behaviors under new stimulus conditions, one first must ask these questions.

Markle and Tiemann (1967) formalized this system into what they called the "programming process", and the first extension of this in education is programmed instruction. As you can see in the diagram (see Figure 1), our five questions have become, in behavioral terms:

| | |
|---|---|
| Where do I want to go? | Behavioral objectives |
| How can I tell when I get there? | Criterion test |
| Where am I now? | Entry behavior |
| What can I do to get there? | Instructional sequence |
| How do I follow my progress? | Performance data |

In constructing an instructional program, a programmer follows the numbered sequence of steps, the student entering the system from left to right. We have already stated that these are the steps someone would take to solve a problem, any problem; therefore, we believe the programming model also provides a clear, efficable, and accountable format for work in in-patient psychiatry, which is the topic of our discussion.

Over the past two years, several staff members of the Northwestern Memorial Hospital Institute of Psychiatry have been attempting to implement this model as a basis for therapy. We have used it with all types of patients in both individual and group settings, on both locked and open units. We would like to use our time here to describe a few of our procedures and relate to you some of our experiences with these methods.

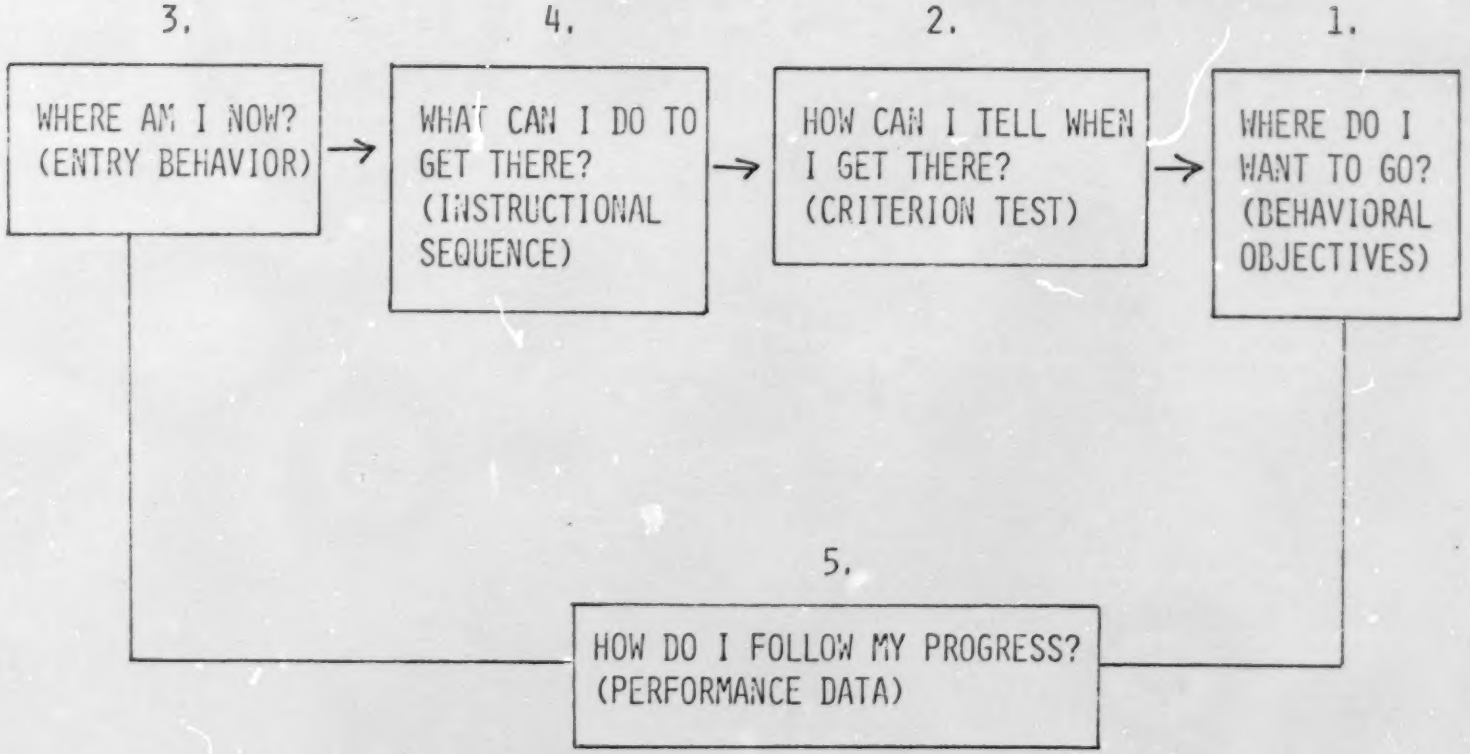

3.
WHERE AM I NOW?
(ENTRY BEHAVIOR)
4.
WHAT CAN I DO TO GET THERE?
(INSTRUCTIONAL SEQUENCE)
2.
HOW CAN I TELL WHEN I GET THERE?
(CRITERION TEST)
1.
WHERE DO I WANT TO GO?
(BEHAVIORAL OBJECTIVES)
5.
HOW DO I FOLLOW MY PROGRESS?
(PERFORMANCE DATA)

Figure 1

Our allotted time requires that the descriptions be brief and perhaps misleadingly simplified; however, we would be glad to answer your questions at the end of the presentation.

First, since we are talking about instructional technology, we would like to draw a few parallels between effective teaching and psychotherapy. Once again, looking at our programming process (see Figure 2), let us say that as instructors we plan to establish the behavioral objective that the student should be able to have the concept of "cowboy" - that is, to correctly identify new examples of "cowboy" and discriminate them from non-examples of "cowboy" - verbalizing the terms "cowboy" and "non-cowboy" to fit said examples, and assuming that clothes make the man (in this case "cowboy"). The criterion test is simply that when different examples and non-examples are presented to the student, he will be able to correctly label them "cowboys" and "non-cowboys" . . . A hypothetical entry behavior could be a certain command of the language, or having the concept of "boy" already - but for our purposes, simply being here will suffice. The basis of the instructional sequence would go something like this: (see Figures 3 - 6)

This is a cowboy. (example)

This is a non-cowboy, sometimes referred to as a "boy-cow" or steer. (non-example)

This is likewise a non-cowboy, also known as a bum. (non-example)

This is another cowboy. (example)

All this time, performance data on the student's performance should be gathered, and, finally given a sufficient number of types of examples and non-examples, along with proper programming, the student should reach criterion. The main point we would like to make here is that during this process, we never attempt to punish or coerce the student into giving the right answer, nor do we ask him to have a great deal of insight into himself or cowboys (although he may end up this way). We attempt to build on the student's current relevant repertoire with new effective instruction, in order for him to reach a specific criterion where a critical consequence is delivered, this consequence being a grade, success, learning, or whatever . . .

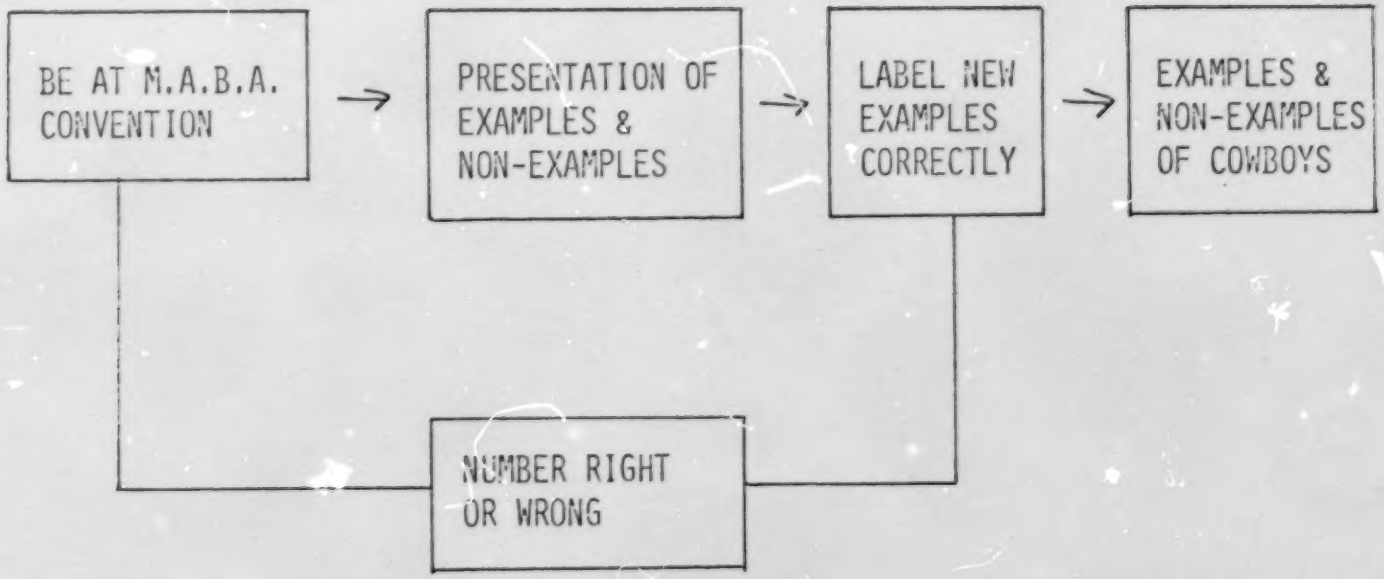

BE AT M.A.B.A. CONVENTION
PRESENTATION OF EXAMPLES & NON-EXAMPLES
LABEL NEW EXAMPLES CORRECTLY
EXAMPLES & NON-EXAMPLES OF COWBOYS
NUMBER RIGHT OR WRONG

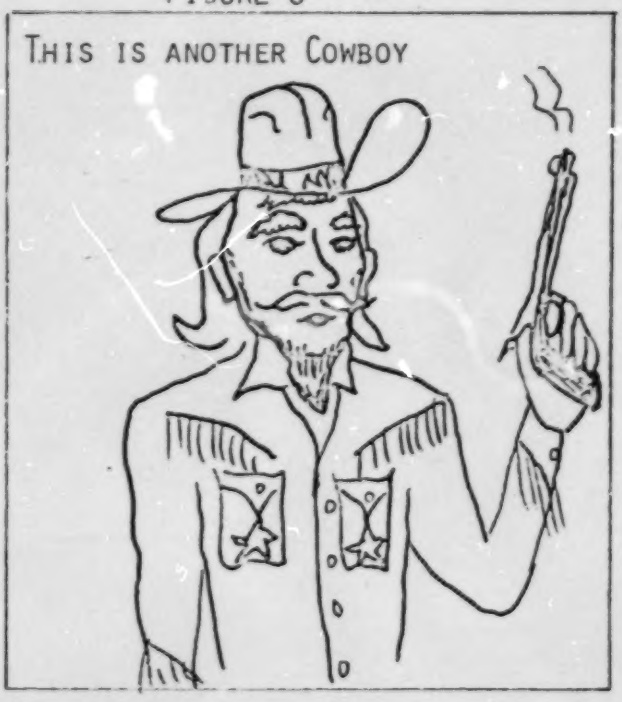
Figure 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6



In our work as in-patient therapists, most of us mental health workers, we attempt to carry out this type of procedure - building on the current relevant repertoire of the patient until he receives his or her critical consequences. The system of building on the patient's strengths or constructing behaviors in the patient's repertoire, as well as other procedures, are adapted from the Constructional Approach of Israel Goldiamond.

We should also like to note here a few differences between classroom instruction and in-patient psychiatry. First, the problems dealt with on a psychiatric unit are most often obscured with competitive concurrent social repertoires of the patients as well as similar competitive repertoires of much of the professional staff. Furthermore, while a student only selects the "wrong answer", or no answer when the correct answer is not apparent, the psychiatric patient may engage in something not quite so simple (or obvious) and often more disturbing to the community than simply a "wrong answer". His behavior may be termed "bizarre" or "inappropriate", although he may be engaging in these behaviors to gain some critical consequences or to avoid or escape some intolerable situation. We define the problematic behavior in Constructional terms, and refer to it - not as good or bad, right or wrong, or correct or incorrect - but simply in terms of cost or jeopardy to the patient, meaning that some behaviors are more costly or jeopardizing to the individuals than are others. When a person finds himself on a psychiatric unit, you can generally assume that this person is engaging in some costly or jeopardizing behavior. In our relations with patients, therefore, the prime goal of therapy is always to teach the patient to find ways of getting what he wants in a less costly manner.

This brings us to another major feature of the Constructional model, which is: That the patient must have a hand in determining the goals of the program - the therapist has no ethical claim on the direction in which the program is to go, other than in a consultative or advisory capacity, and areas to be left alone, as well as those to be worked on, are specified.

We would also like to note the non-reciprocity of traditional organic-psychothreapy to the educational process; we seriously doubt that massive doses of major tranquillizers or repeated sessions of electroconvulsive-therapy will improve a student's geography scores.

At this point, we would like to describe some of the procedures used to instruct our patients in how to get what they want in a less costly manner.

It has been shown that in many instances, the behavior necessary to obtain a critical consequence may be available in a person's repertoire, but it unfortunately occurs under stimulus conditions not occasioning reinforcement. One of our main thrusts, then, may be to attempt by procedures for transfer of stimulus control, modeling, fading, shaping, and substitution through behavioral assignment to get more efficient behavior under more beneficial circumstances. A person may be able to tell another person to leave him or her alone, but may not be able to tell a particular person at a particular time. In this example, the problem is one of stimulus control rather than of a behavioral deficit, and the program is designed accordingly.

In any therapy, it is hoped that the client after a time will be able to carry on without the therapist. Self-control procedures, then, are the means by which we, as therapists, train our patients to analyse the variables which control their behavior, and to establish their own behaviorally explicit goals for the future. Nowhere in our procedures do we attempt to "modify behavior" in the sense of depriving consequences and subsequently resupplying them contingent upon the individual's behavior; we simply try to teach effective ways for the individual to identify and obtain his program specific and critical consequences.

Also, we have found that if we are able to design the program to ensure the successful completion of its sequential components, this

progression through the program will provide the consequences necessary to maintain the patient's participation. For example, a person finds that, from keeping logs of his or her behavior, he can predict under what conditions, let us say, hysterical seizures are going to occur; if these seizures are distressful to him then the chance that the behavior logs will be kept increases as he is able to successfully avoid seizures by altering the controlling conditions and producing the same consequences by an alternative means -- it is important to note here that while the alternative behavior is rendered effective in the program, the less desirable behavior of seizure activity also remains effective, the maintaining consequences are never withheld.

Another point we would like to make is about bananas (see Figure 7) -- that is, you really should know a great deal about the science of human behavior if you intend to use any of these procedures -- enthusiasm is not enough -- knowing your bananas about the field is not to be confused with going bananas over it.

Some examples of our efforts seems in order here.

CASE I

The first case study we would like to discuss is that of an 18 year old black male who was an almost total hemiplegic following a severe gunshot wound. The bullet entered his right eye and exited from the lower portion of the right occipital. He was brought to Psychiatry in 4-way leather restraints subsequent to his unpredictable and violent behavior in Neurology. After several weeks under observation on a neurosurgical unit, the neurological prognosis was that, if the patient lived at all, he would probably never again function at any level considered near normal.

Upon his arrival on the psychiatric unit, the young man continued to behave violently and unpredictably, but being in restraints and without the opportunity to be physically assaultive, he soon resorted to purely verbal attacks; it was noted that his verbal abusiveness tended to repel

Figure 7

much of the staff's approaching him (the same consequence as generated by his physical aggressiveness). During one of his infrequent and brief quiet moments, he expressed fear of being abused by the nearly all-white staff on our unit, since he was blind and crippled, thus vulnerable and defenseless; he also expressed a pervasive anger at his sudden loss of control over his environment and his resultant massive loss of critical consequences. He was, at this point, assured that the staff was concerned only with his recovery - that if he wanted assistance from staff, he could ring a call-bell provided him at his bedside, and conversely, if he wanted privacy, we would respect his wish and leave if he so instructed us. Much of his "acting-out" behavior subsided shortly thereafter, as he was now afforded some control over the activity of others around him. With better communications thus established, a program was designed as shown here (see Figure 8). You will note for our communicative sake, that we have attached "Goals", "Criterion", "Current Relevant Repertoire", "Program Strategies", and "Records" to the programming process.

The patient's goals (which he determined with assistance of staff) were that he would be able to: (1) feed himself; (2) dress himself; (3) walk again; (4) control excessive drooling, which had become an almost constant problem; and (5) enter into an outpatient vocational rehabilitation program. Criterion would be met if he could demonstrate these acquired skills. The resources in his repertoire were mainly that he had right side motor-skills, he could speak coherently and fairly clearly, he could discriminate vague light and dark shapes, and had a history of some very effective social skills which distinguished him from the average 18 year old (he had formerly been a successful pimp on Chicago's West Side). He had also completed high school.

In accomplishing our first goal, we taught the patient to tactilely locate and discriminate items on his food tray; primarily verbal instruction was used to teach him what he was touching and what he should do with it. A special cutting fork was added to the program, and instruction

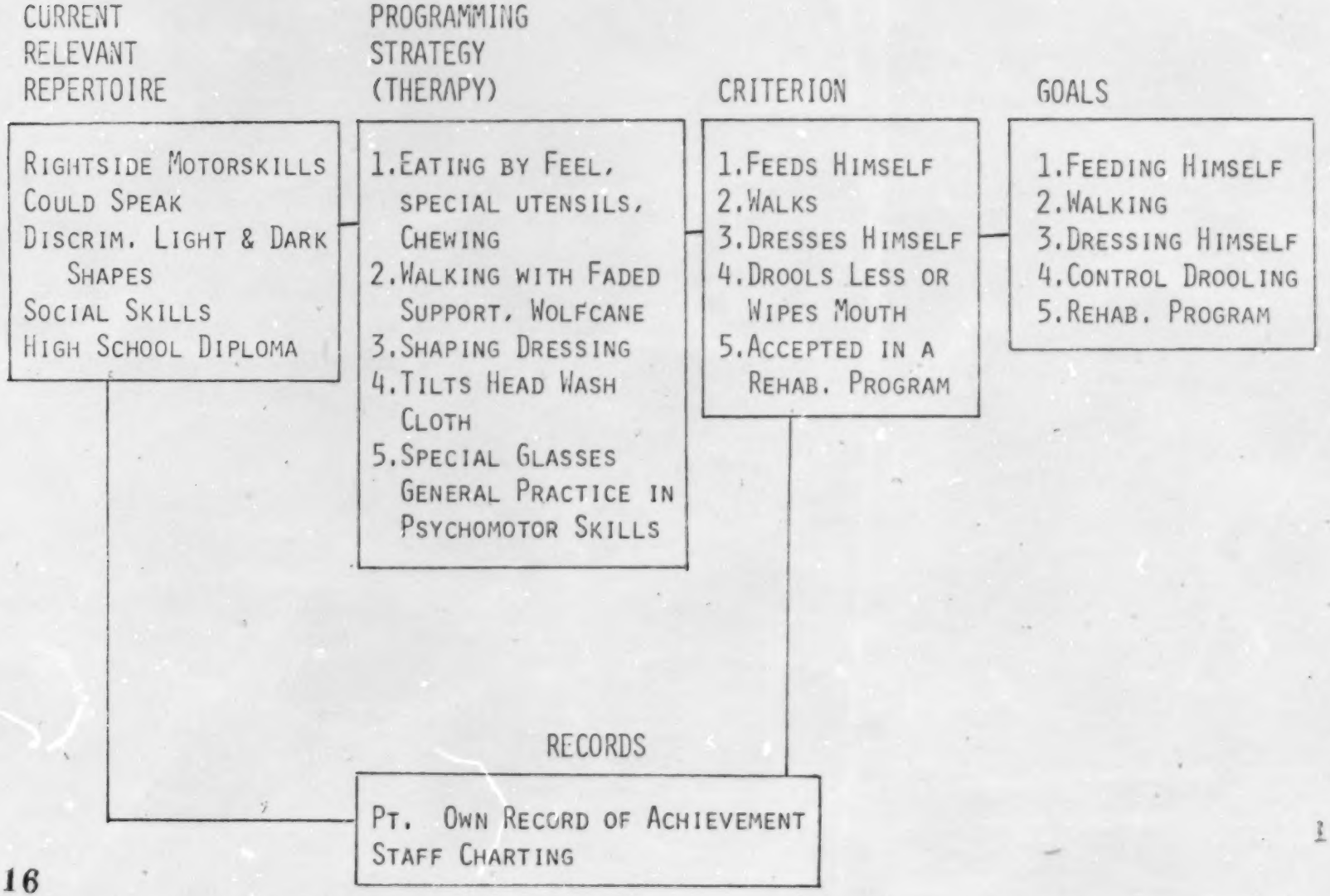

CURRENT RELEVANT REPERTOIRE
PROGRAMMING STRATEGY (THERAPY)
CRITERION
GOALS
Rightside Motorskills
Could Speak
Discrim. Light & Dark Shapes
Social Skills
High School Diploma
1. Eating by Feel, special utensils, Chewing
2. Walking with Faded Support, Wolfcane
3. Shaping Dressing
4. Tilts Head Wash Cloth
5. Special Glasses
General Practice in Psychomotor Skills
1. Feeds Himself
2. Walks
3. Dresses Himself
4. Drools Less or Wipes Mouth
5. Accepted in a Rehab. Program
1. Feeding Himself
2. Walking
3. Dressing Himself
4. Control Drooling
5. Rehab. Program
RECORDS
Pt. Own Record of Achievement
Staff Charting

Figure 8

was given the patient in its use, as well as the use of the right side of his mouth in eating. This program was continued until in a few days the patient was able to eat totally unassisted once his food tray was placed within his easy reach.

Since the fellow had expressed feelings of embarrassment over his patient-ly and infirm appearance, and reluctance to join other patients out in the day room due to this appearance, we next undertook procedures to establish his dressing and grooming himself. The first step was to attach social consequences to his being dressed on the unit; staff began by dressing the patient's entire paralysed left side and part of his right side, but allowing him to complete the very last steps in the procedures (as by pushing his arm through the shirtsleeve); once dressed in this manner, he was taken on request to the day room where, over a period of a few days, he befriended several other young people currently on the unit. With these program specific consequences established, a backward-chaining procedure (and simultaneous fading out of staff assistance) was instituted until, after approximately two weeks, he was able to dress entirely on his own. He was then taught to undress by similar methods, and to place his clothes on a chair near his bed, allowing him access to them whenever he wanted to dress himself. Finally, he was able to fully dress in but five minutes, as opposed to the half-hour ordeal such activity had posed at the outset of the program. The patient could now eat and dress unassisted, had reason to do so as it allowed him to socialize with his newfound friends, and it was now highly consequential to be able to walk about and freely join in the unit's various activities.

Walking was, therefore, undertaken over a period of several weeks, beginning simply with teaching the patient to stand erect and find the posture which gave him the greatest sense of balance. With staff holding him upright by standing on his functional right side and wrapping an arm around his waist for support, the patient was first taught to move his lower trunk so that his paralysed leg would be thrown forward; with a cane in his right hand, he was then instructed to bring his right leg

forward while maintaining balance with the cane. After a few successful trials, several such steps could be taken covering progressively longer distances, until he was eventually able to navigate the distance from his room to the farthest ends of the unit -- staff assistance was, as in the other procedure, gradually faded out, turning the activity entirely over to the patient, whose confidence soared to heights which shortly provided distressful consequences for the staff -- one night, while making late night room checks, one of our staff found the patient's room empty, and after an exhaustive search of the unit, concluded that the fellow had eloped. A few minutes later, a phone call from Neurosurgery revealed that the kid had taken an elevator from the fifth to the eleventh floor of the hospital, where he was now busily chasing nurses about their unit, laughing and talking loudly about catching them to "pinch their booties!" He was amusedly brought back to Psychiatry, and quizzed as to how he had found his way up to eleven; while he claimed to have counted the elevator buttons using tactile stimuli, we pointed out to him that there was an extra button at the lowest point on the panel, for the basement level, and that it should have fooled him into miscounting the buttons and gotten him to the tenth floor instead of eleven; much to our surprise, he said he had placed his face close to the bottom of the control panel and had been able to barely make out a "B" on the lowest button, thus taking the basement button into consideration in his subsequent count. The next day, he was given an opthalmology consult and fitted for cataract lenses, which restored a modest, but welcomed, amount of vision.

Next, control of drooling was accomplished simply by teaching the fellow to unobtrusively tilt his head a certain way to control the direction of flow, and to swallow when he felt a critical volume of saliva collected under his tongue; a washcloth also became a standard part of his attire, to be kept handily in his pocket on those few occasions when there was an accidental overflow.

Finally, our social worker arranged for an interview of the patient at a vocational rehabilitation facility near his home on the West Side, in which the patient performed so well, with such competance and a good amount of bravado, that he was shortly thereafter discharged from the hospital. Total stay in the hospital was about four months, with the patient's recovery, for all practical purposes, complete; all of his explicit goals had been achieved, and without the use of any aversive measure, or extraneous reinforcers. He is currently employed doing piecework at a factory, and is planning to undertake further schooling, possibly in a trade. A year's followup showed that only one major problem had arisen since his discharge from the hospital: his parents were perturbed by his sneaking out of the house at late hours in the night and walking a little over one mile to a local tavern, where he has often been ejected for chasing women and generally raising Hell, like many other functionally normal nineteen-year-olds might do.

CASE II

The next study we would like to cite is a crisis-oriented problem. The patient involved was a woman in her late thirties who had a history of hysterical paralysis. These symptoms would come and go, sometimes involving months of hospitalization, and would usually occur on occasions when her paralysis would remove her from an acutely distressing situation. In this current instance, it was obvious from reading her chart that the patient had had an inordinate amount of trouble in her current job, from which she was able to escape upon becoming paralysed. Her goal, as she verbalized it, was "to get well", but she quickly asserted that she would have to stay a long time in the hospital to do so.

As the first part of her program, she was assured that she was going to stay in the hospital until she was well, which did not necessarily mean she had to leave when her paralysis was gone. Rather, she could leave when she herself thought she was able to go. Three days prior to this interview, she had been unable to move any part of her body from the neck down;

she was fed and attended to by the staff, which she stated she enjoyed. Immediately after the initial interview, which took place in the morning, a program was augmented. At this time, she was told of the many activities that went on during the day in which she might be interested and enjoy.

She was placed in a chair in her room, next to her breakfast tray, and a fork was placed in her hand. She was hungry, not having eaten since the preceeding day. Staff then left her alone in the hope that by giving her what she wanted, relief from her job by staying in the hospital, by making it easy for her to respond in a very reinforcing situation, and by describing to her many of the other available activities on the unit, some type of non-paralysed behavior would occur. When the staff returned to check on her a few minutes later, she had finished her breakfast and crawled back into her bed. She was allowed to rest awhile, and a female staff member shortly thereafter persuaded her to take a shower with assistance and afterward to let staff help her to get dressed. Following these tasks, the woman was walked out to the day room, seated in a circle of friendly patients, and introduced to the group. A little while before lunch arrived, staff noticed that she had walked to a nearby coffee server, unassisted, to get herself a cup of coffee. The whole process for "curing" this hysterical paralysis took exactly 2 hours and 43 minutes. The program you see before you (Figure 9) is a representation of the one used with this woman; again, no aversive measures were implemented; of course, the gains we had made would last only as long as she stayed in the hospital, so a second, more extensive program similar to the first, was arranged and implemented.

CASE III

The last study we would like to present is a case which was conducted in a group format. A special group was established at the Northwestern Memorial Hospital Institute of Psychiatry, called the Personal Effectiveness Group. In this group, procedures and methods similar to the ones already described were employed, but with the group format, it was hoped that the "contingency construction" power would increase synergistically as a function

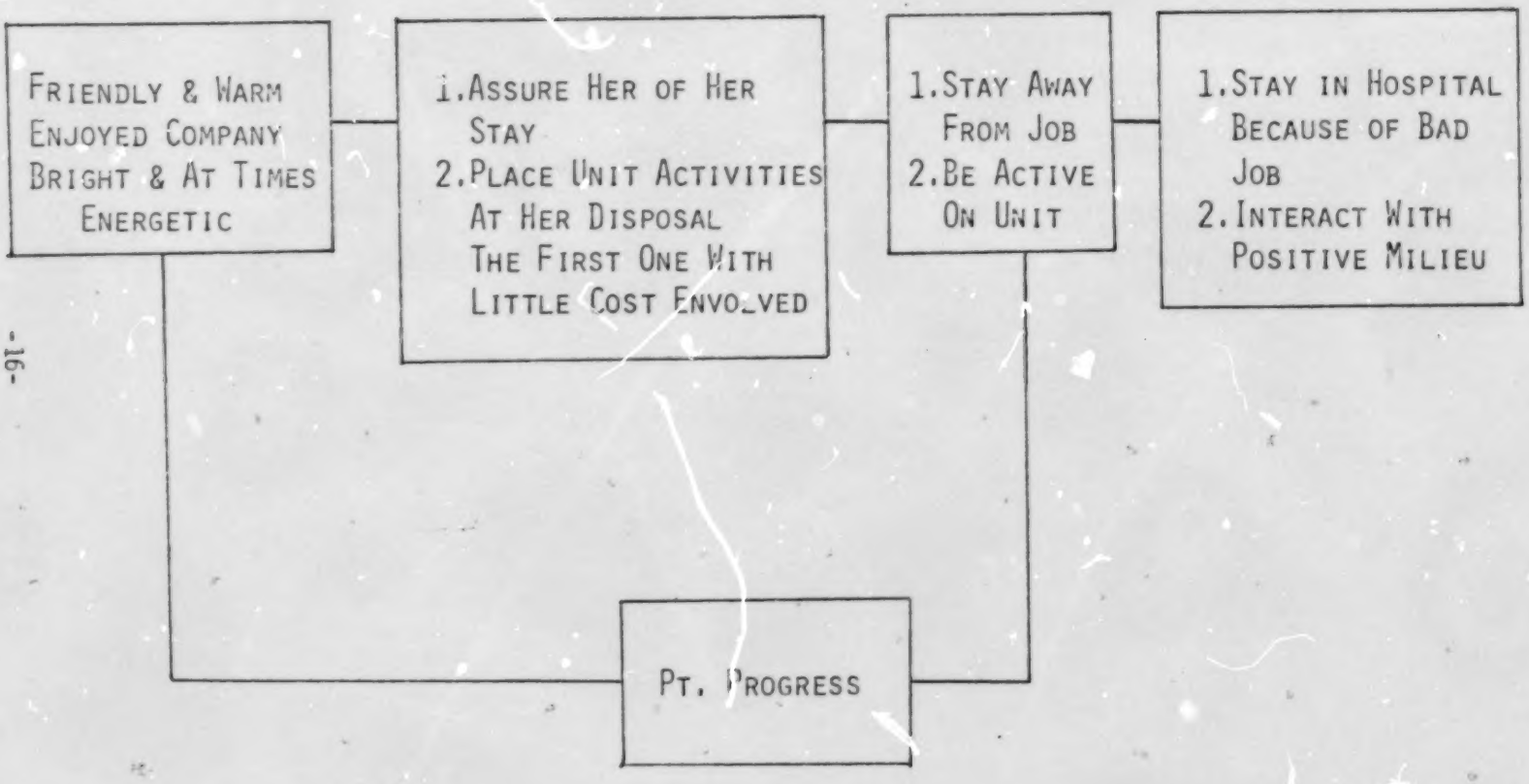

FRIENDLY & WARM
ENJOYED COMPANY
BRIGHT & AT TIMES
ENERGETIC
1. ASSURE HER OF HER STAY
2. PLACE UNIT ACTIVITIES AT HER DISPOSAL THE FIRST ONE WITH LITTLE COST ENVOLVED
1. STAY AWAY FROM JOB
2. BE ACTIVE ON UNIT
1. STAY IN HOSPITAL BECAUSE OF BAD JOB
2. INTERACT WITH POSITIVE MILIEU
PT. PROGRESS

FIGURE 9

of the number of people working on the various individual problems. This group also utilised the forms and recording procedures designed by Goldiamond (1974).

The subject was a female group member who began as an in-patient, but continued as an outpatient. She designed a program of self-control procedures to bring her hallucinations, both auditory and visual, under control (see Figure 10).

This patient reported that she had been actively hallucinating over the last four years. Chemotherapy had been tried with little success. After hourly logging her daily behavior, including the hallucinations, it was pointed out to her that she was not hallucinating constantly (indicating discriminative control over this behavior). Joint examination of the logs revealed multiple and distinguishable occasions for the hallucinations. Discussion centered around those times when the hallucinations did not occur. They did not occur during, or immediately after, long walks to pre-determined destinations (which were previous program sub-goals). They also did not occur while she was working on a project with a clear beginning and end (e.g. painting a picture).

The patient stated that a possible procedure might be to set a daily goal of things to be completed: walking, art projects, and other similar activities. Examination of the following week's logs indicated a substantial reduction in the time spent hallucinating. Subsequent programming centered around behavior which could produce consequences maintaining the remaining hallucinations. Through her logs, the patient noted a relationship between her hallucinations and certain social situations. For example, when sitting with friends who began to quarrel, the patient became aware of a "crammed" feeling. Hallucinations followed, and she left the room. Through programming, the "crammed" feeling became discriminative stimulus for her to examine and then alter the situation either by asking her friends to leave or by leaving the room herself before hallucinations began. Hallucinating ceased, and the program

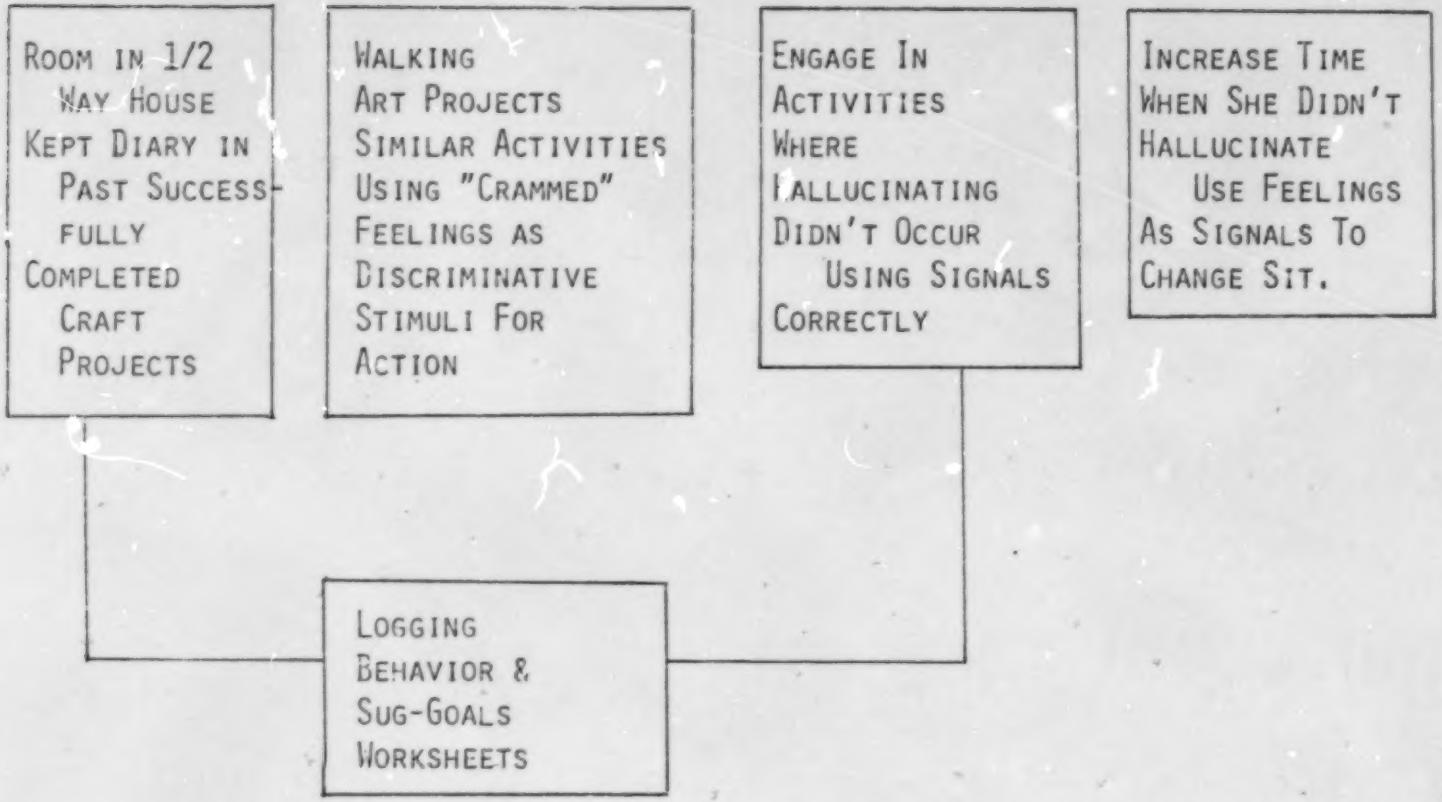

Room in 1/2 Way House
Kept Diary in Past Successfully
Completed Craft Projects
Walking
Art Projects
Similar Activities
Using "Crammed" Feelings as Discriminative Stimuli For Action
Engage In Activities Where Hallucinating Didn't Occur
Using Signals Correctly
Increase Time When She Didn't Hallucinate
Use Feelings As Signals To Change Sit.
Logging Behavior & Sug-Goals Worksheets

FIGURE 10

was able to be moved to other targeted outcomes.

In conclusion, we would like to summarize our work by recalling the main aspects of our procedures: treatment goals are first formulated by the patient working with staff; the patient's entry behavior is then assessed in its relevance to the treatment goals; program strategies are designed and implemented to construct new behaviors or stimulus control topographies which effectively yield the patient's critical consequences and replace the previous symptomatology in his repertoire; some performance criteria are established and monitored via the patient's own reports as well as by staff documentation.

No aversive or eliminative procedures are used, nor are extraneous or "artificial" consequences applied. The theraputic programs are designed in harmony with the patient's own abilities and with the behavioral ecology in which he will later have to function. Such procedures protect the patient's rights by allowing a natural selection of alternatives in which he might engage, and ensure the person's participation at all levels of his treatment.

Finally, the accountability of these procedures, by virtue of their explicitness and their humanity in design, allow the application of such behavioral procedures in institutional settings where other models of treatment are predominant and officially sanctioned.

CASE I: Programmed by Paul Andronis

CASE II: Programmed by Michael Layng

CASE III: Programmed and followed by Joel Cohen and Terrence Layng

PERSONAL EFFECTIVENESS GROUP: Terrence Layng, Group and Programming Supervisor
Steve Merley, Co-Programming Supervisor
Joel Cohen and Steve Merley, Group Co-Leaders

Script written by Michael Layng, Paul Andronis, and Terrence Layng.

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